



# LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

Accredited by NAAC with 'A' Grade, ISO 9001:2015 Certified Institution

Approved by AICTE, New Delhi and Affiliated to JNTUK, Kakinada

L.B.Reddy Nagar, Mylavaram-521230, Krishna Dist, Andhra Pradesh, India

## FRESHMAN ENGINEERING DEPARTMENT

PO Attainment for the (Batch 2015-16) A.Y. 2015-16

Total number of First year Courses under R14 regulation = 42

COURSE CODE	COURSE NAME	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
S132	Applied Mathematics - I	76	76	76									76
S133	Applied Mathematics - II	72	72	73									72
S135	Applied Mechanics	60	60					60					60
S143	Basic Electrical Engineering	69	69	70	69	68							69
S145	Basic Electronics Engineering	63	63	62									64
S146	Basic Engineering Mechanics	67	67		67	67							
S147	Basic Mechanical Engineering	76	76	74	77		76	77	74			77	77
S150	Building Materials and Construction	82					82	82	82	82			82
S156	Circuit Theory	75	75										
S170	Computer Programming	59	59	59									59
S178	Data Structures	72	72	71	69								70
S191	Digital Logic Design	75	74	75	75								74
S209	Electrical Circuits - I	76	77										76
S211	Electrical Circuits and Networks – I	67	68	67									67
S212	Electrical Circuits and Networks – II	64	65	65									63
S224	Electronics Devices and Circuits	64	63	60									64
S232	Engineering Chemistry	66	66	66			65	65					66
S235	Engineering Graphics					71				71		71	71
S237	Engineering Mechanics	78	79	78									78
S238	Engineering Physics	61	61	61	61	61							61
S239	English - I						70			70	70		70
S240	English - II						72			72	72		72

S282	Introduction to Engineering Mechanics	55	61	61	61					60	60	57	61
S288	Mathematics I	77	77	77									77
S299	Mathematics II	70	70	70									70
L113	Basic Mechanical Engineering Lab	71	67	74	67		73	73	79				73
L114	Basic Simulation Lab	53	53			53							53
L115	Building Planning and Computer Aided Drawing					91	91	91					91
L122	Basic Electronics Lab.	63	63	63	63					63	63		63
L123	Computer Aided Engineering Drawing Lab					68				68		68	68
L124	Computer Aided Engineering Graphics Lab					68				68		68	68
L126	Computer Programming Lab	67	67	67	67	67			67		67		67
L128	Data Structures Lab	71	71	71	71				71	71	71		71
L131	Digital Electronics Lab	67	67	67	67	67			67	67	67		
L135	Electrical Circuits and Networks lab	49	49		49	49							
L139	Electronics Devices and Circuits Lab	73	73	73	73	73							
L140	Engineering Chemistry Lab	93	93		93		93	93					
L142	Engineering Physics Lab	87	87	87	87					87			87
L143	Engineering Workshop	62		62	62	62	62			62			62
L144	English Communication skills lab				91					91	91		91
L154	IT Workshop	78			79	76							79
L175	Raptor and Office Suite Lab		71	71	71			81		71		71	71
Average PO		69	69	69	71	67	76	78	73	72	70	69	71
Target		64	64	63	63	62	61	63	64	64	67	63	63

### **Actions taken based on the results of evaluation of relevant POs**

#### **PO Attainment Levels and Actions for improvement: (Batch2015-16) A.Y. 2015 – 16**

The contribution of PO attainments to all POs from all first year courses are analysed and compared with target levels and the actions taken correspondingly are tabulated in table

below.

POs	Target Level	Attainment Level	Observations
<b>PO1: Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.			
<b>PO1</b>	<b>Target Level</b> 64	<b>Attainment Level</b> 69	<b>Target reached</b> Out of the 34 courses mapped 25 courses reached the target comfortably. The attainment of the courses Computer Programming, Introduction to Engineering Mechanics, Basic Simulation Lab, Electrical Circuits and Networks Lab are considerably low.
<b>Action 1:</b> For the theory courses the faculty are instructed to give more assignments for the students. <b>Action 2:</b> The faculty of the laboratory courses were advised to conduct more demonstration classes.			
<b>PO2: Problem analysis:</b> Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.			
<b>PO2</b>	<b>Target Level</b> 64	<b>Attainment Level</b> 69	<b>Target reached</b> 32 courses are mapped to this PO2 and out of these 21 courses reached the targets comfortably. Of the remaining courses Computer Programming, Basic Simulation Lab, Electrical Circuits and Networks Lab are considerably low.
<b>Action 1:</b> The faculty are instructed to conduct more tutorials to improve the student performance. <b>Action 2:</b> For the laboratory courses, faculty are advised to demonstrate the laboratory experiments and allot time for repetition.			
<b>PO3: Design/development of solutions:</b> Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety and the cultural, societal and environmental considerations.			
<b>PO3</b>	<b>Target Level</b> 63	<b>Attainment Level</b> 69	<b>Target reached</b> The number of courses mapped to this PO3 is 26. The courses that reached the target are 20. The remaining courses are marginally less except Computer Programming, EDC, Engineering Physics.
<b>Action 1:</b> The attainments of the courses with complex engineering problems are to be improved by giving more assignments with follow up action.			
<b>PO4: Conduct investigations of complex problems:</b> Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of the information to provide valid conclusions.			
<b>PO4</b>	<b>Target Level</b> 63	<b>Attainment Level</b> 71	<b>Target reached</b> PO4 is mapped with 20 theory as well as laboratory courses. 16 courses reached the target comfortably. Only Electrical Circuits and Networks Lab has

			considerably low attainment.
	<p><b>Action 1:</b> Faculty are instructed to demonstrate laboratory experiments using video lectures in order to motivate students.</p> <p><b>Action 2:</b> For Laboratory courses it is recommended to give additional experiments for practise.</p>		
<b>PO5: Modern tool usage:</b> Create, select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.			
<b>PO5</b>	<b>Target Level</b> 62	<b>Attainment Level</b> 67	<b>Target reached</b> 14 courses are mapped to this PO5 and out of these 11 courses reached the targets comfortably. Of the remaining courses ECN Lab, Basic Simulation Lab are considerably low.
	<p><b>Action 1:</b> The faculty are instructed to motivate the students to practice beyond the academic hours in laboratory with the help of IT tools.</p> <p><b>Action 2:</b> The concerned faculty are advised to allot relevant additional problems for practise.</p>		
<b>PO6: The engineer and society:</b> Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.			
<b>PO6</b>	<b>Target Level</b> 61	<b>Attainment Level</b> 76	<b>Target reached</b> 9 courses are mapped to this PO6 and all the courses reached the target including theory and laboratory.
	<p><b>Action 1:</b> The faculty are instructed to give practical examples relevant to engineering practices to enhance skills to handle problems in the societal context.</p>		
<b>PO7: Environment and sustainability:</b> Understand the impact of the professional engineering solutions in societal and environmental contexts and demonstrate the knowledge of and need for sustainable development.			
<b>PO7</b>	<b>Target Level</b> 63	<b>Attainment Level</b> 78	<b>Target reached</b> The number of courses mapped to this PO7 is 8. The courses that reached the target are 7. The remaining theory course Applied Mechanics attainment is slightly less.
	<p><b>Action 1:</b> The faculty are instructed to teach and give practical approach of the topics in view of long term goals like environment and sustainability.</p>		
<b>PO 8: Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
<b>PO8</b>	<b>Target Level</b> 64	<b>Attainment Level</b> 73	<b>Target reached</b> 6 courses are mapped to this PO8 and all the courses reached the target including theory and laboratory courses.
	<p><b>Action 1:</b> Faculty are advised to instruct the first year students about the importance of ethics in the engineering profession.</p> <p><b>Action 2:</b> Faculty are advised to instruct students to follow ethical values while doing the experiments and also while writing records.</p>		
<b>PO 9: Individual and team work:</b> Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary settings.			
<b>PO9</b>	<b>Target Level</b>	<b>Attainment Level</b>	<b>Target reached</b> PO9 is mapped with 14 theory as well as laboratory

	64	72	courses. 11 courses reached the target comfortably. Only Engineering Workshop, Basic Electronics Lab and Introduction to Engineering Mechanics are low compared to the other courses.
	<p><b>Action 1:</b> Students are encouraged to participate in team/group activities in laboratory sessions.</p> <p><b>Action 3:</b> The concerned faculty are advised to allot relevant projects to work in team to improve the student performance.</p>		
<p><b>PO 10: Communication:</b> Communicate effectively on complex engineering activities with the engineering community and with society at large such as being able to comprehend and write effective reports and design documentation, make effective presentations and give and receive clear instructions.</p>			
<b>PO10</b>	<b>Target Level</b> 67	<b>Attainment Level</b> 70	<p style="text-align: center;"><b>Target reached</b></p> <p>The number of courses mapped to this PO10 is 8. The courses that reached the target are 6. The remaining two theory courses that are slightly less are Introduction to Engineering Mechanics, Basic Electronics Lab.</p>
	<p><b>Action 1:</b> Classes on communication and soft skills, analytical aptitude, and technical skills are arranged by the college every year apart from regular classes as per schedule.</p> <p><b>Action 2:</b> Group discussion / Role play/ Debate/ Quiz/Essay Writing /Elocution competitions are encouraged at regular intervals.</p>		
<p><b>PO 11: Project management and finance:</b> Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work as a member and leader in a team to manage projects and in multidisciplinary environments.</p>			
<b>PO11</b>	<b>Target Level</b> 63	<b>Attainment Level</b> 69	<p style="text-align: center;"><b>Target reached</b></p> <p>Only 6 courses are mapped with PO11. 5 courses reached the target comfortably. Only Introduction to Engineering Mechanics attainment values are low compared to the other courses.</p>
	<p><b>Action 1:</b> It is suggested to allot few projects to work in group to improve the ability to work in team as well as individually.</p>		
<p><b>PO 12: Life-long learning:</b> Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.</p>			
<b>PO12</b>	<b>Target Level</b> 63	<b>Attainment Level</b> 71	<p style="text-align: center;"><b>Target reached</b></p> <p>36 courses are mapped to this PO12 and out of these 30 courses attained the target comfortably. The remaining courses are marginally less and only Computer Programming, Basic Simulation Lab courses have considerably less attainment values.</p>
	<p><b>Action 1:</b> It is advised to insist on correlation between the contents of the subject and their applications in view of technological changes in broader contexts.</p> <p><b>Action 2:</b> Inculcate the habit of setting short and long term goals in students.</p>		